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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,382	07/23/2001	Hidefumi Fujimoto	KNI-152-A	4726

21828 7590 11/26/2002

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EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1775

11

DATE MAILED: 11/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,382

Applicant(s)

FUJIMOTO ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The thin metal film's position is disclosed in the specification as between the glass plate and the undercoat film (page 8, lines 18-21), but claim 13 claims that the thin metal film is on the surface of the hydrophilic member (over the overcoat layer).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 9-10, 12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,379,776 to Tada et al. in view of US Patent No. 5,854,708 to Komatsu et al.

Regarding claims 1-7, 9-10, 12 and 14-20, Tada discloses a hydrophilic member comprising a photocatalyst layer formed on a surface of a substrate and an overcoat layer comprising silicon oxide formed on the surface of the photocatalyst layer (column 2, lines 16-32

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and column 10, lines 3-17). Tada discloses that the mean surface roughness of the top surface is within a range of 1.5 to 80 nm (column 13, lines 11-31). Tada discloses that the photocatalyst layer may comprise TiO_2 (column 2, lines 48-54), but does not disclose the use of SnO_2 as the photocatalyst layer. Komatsu discloses that a photocatalyst layer may comprise TiO_2 or SnO_2 (column 2, lines 40-44). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use SnO_2 as the photocatalyst layer of Tada, because it is functionally equivalent to TiO_2 , because both materials function as photocatalysts.

Regarding claims 3 and 14, Tada discloses that the mean surface roughness of the photocatalyst layer is within a range of 1.5 to 80 nm (column 2, lines 16-22).

Regarding claims 4 and 15-16, Tada discloses that the mean spacing of the irregularities of the top surface of the overcoat layer is within a range of 4 to 300 nm (column 13, lines 11-31).

Regarding claims 5 and 17-19, Tada discloses that the photocatalyst layer has a thickness within a range of 10 to 500 nm (column 3, lines 63-67 and column 4, lines 1-6).

Regarding claims 6 and 20, Tada does not disclose a specific thickness range for the SiO_2 overcoat layer, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thickness of the overcoat layer, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

***In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).** In addition, Komatsu discloses an overcoat layer of SiO_2 and further discloses that the layer may have a thickness within the range of 15 to 100 nm (column 3, lines 1-12 and column 4, line 54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to select an overcoat layer thickness within the range of 15 to 100 nm, as disclosed by Komatsu, because this thickness is

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sufficient to provide a hydrophilic property while preventing organic substances from being adhered to the hydrophilic member.

Regarding claim 9, Tada discloses that the substrate may be soda lime silicate glass (column 13, lines 62-67).

Regarding claim 10, Tada does not disclose using the hydrophilic member as a mirror, but Komatsu discloses using the hydrophilic member as a mirror by placing a thin metal film between the substrate and the photocatalytic layer (column 8, lines 6-17 and Figure 10).

Regarding claim 12, Tada discloses an alkali-shut-ff undercoat film of SiO_2 disposed between the surface of the substrate and the photocatalytic layer (column 2, lines 16-22 and column 3, lines 14-17).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tada in view of Komatsu as applied to claims 1-7, 9-10, 12 and 14-20 above, and further in view of US Patent No. 5,605,609 to Ando et al.

Tada discloses that the alkali barrier undercoat film may be a monocomponent or a multicomponent composition containing silicon oxide (column 3, lines 14-17), but fails to mention the inclusion of tin oxide. Ando discloses an alkali barrier oxide film comprising silicon and tin (column 10, lines 58-67 and column 11, lines 1-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute an alkali barrier oxide film comprising silicon and tin, as disclosed by Ando, for the alkali barrier film of Tada, because it is functionally equivalent to the alkali barrier films disclosed by Tada.

Response to Amendment

6. In response to Attachment A, the examiner has withdrawn the 112 rejections regarding a tin oxide layer with a rutile structure. The attachment discloses that SnO_2 has a rutile structure.

Response to Arguments

7. Applicant's arguments filed 10/22/02 have been fully considered but they are not persuasive.

Counsel suggests unexpected results of "long-term stability of the hydrophilic properties" from the use of a tin oxide photocatalytic layer with an overcoat layer such as silicon oxide. The examiner respectfully disagrees. Tada discloses that an overcoat layer, such as silicon oxide, prevents organic substances from adhering to a photocatalytic layer which results in the article maintaining its anti-fogging property (hydrophilic property) longer than it would have without an overcoat layer (column 10, lines 3-17). Tada clearly teaches that an overcoat layer improves the long-term stability of the hydrophilic properties, therefore, the results disclosed by the current applicants are not unexpected.

Counsel asserts "that persons of ordinary skill in the art would not consider it obvious to hypothetically modify Tada's antifogging articles by replacing the TiO_2 photocatalytic layer with a layer of SnO_2 ... because SnO_2 is recognized as having inferior photocatalytic properties to TiO_2 ." The examiner respectfully disagrees. Although Tada discloses that TiO_2 has superior photocatalytic properties in terms of chemical stability and photocatalytic activation (column 2, lines 48-54), Tada discloses a plurality of different photocatalytic materials that may be used to form the photocatalytic layer (column 2, lines 48-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the photocatalytic layer of

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Tada from any suitable photocatalytic material, as taught by Tada, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice.

Regarding counsel's arguments regarding the thicknesses of the overcoat layer and the photocatalytic layer, the examiner maintains that Tada teaches the claimed thickness range of the photocatalytic layer and that Tada in view of Komatsu teaches the claimed overcoat thickness range.

Counsel asserts, "the applied references do not disclose the feature of claim 7." The examiner respectfully disagrees. Tada discloses that the article comprises a glass substrate and an overcoat layer of SiO₂. Silicon dioxide has a refractive index between the refractive index of glass and SnO₂.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.



atp
November 25, 2002

Andrew T Piziali
Examiner
Art Unit 1775


DEBORAH JONES

SUPERVISORY PATENT EXAMINER